

BC95 Firmware Upgrade via Code Loader User Guide

NB-IoT Module Series

Rev. BC95_Firmware_Upgrade_via_Code Loader_User_Guide_V1.2

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About the Document

History

Revision	Date	Author	Description
1.0	2017-02-17	Donald TANG	Initial
1.1	2017-04-18	Flame YANG	Added description of firmware upgrade for B656 version or later in Chapter 3.2.
1.2	2017-07-03	Flame YANG	Added description of reverting from a new firmware version to an earlier one in Chapter 4.

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1 Introduction

This document mainly introduces how to use Code Loader tool to upgrade firmware via main UART port for Quectel BC95 module with V100R100C10B650SP11 version or later on Window 7 system.

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2 Tool Installation

Customers need to install “Microsoft .NET Framework” (4.5.2 version or later) on PC before using Code Loader.

2.1. Microsoft .NET Framework Installation

1. Double-click *microsoft.net framework 4.5.2.exe* to install Microsoft .NET Framework.

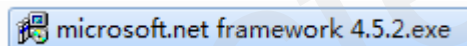


Figure 1: Microsoft .NET Framework Installation Package

2. Wait until the following window shows up, and then click “**I have read and accept the license terms**” and “**Install**” as shown below.

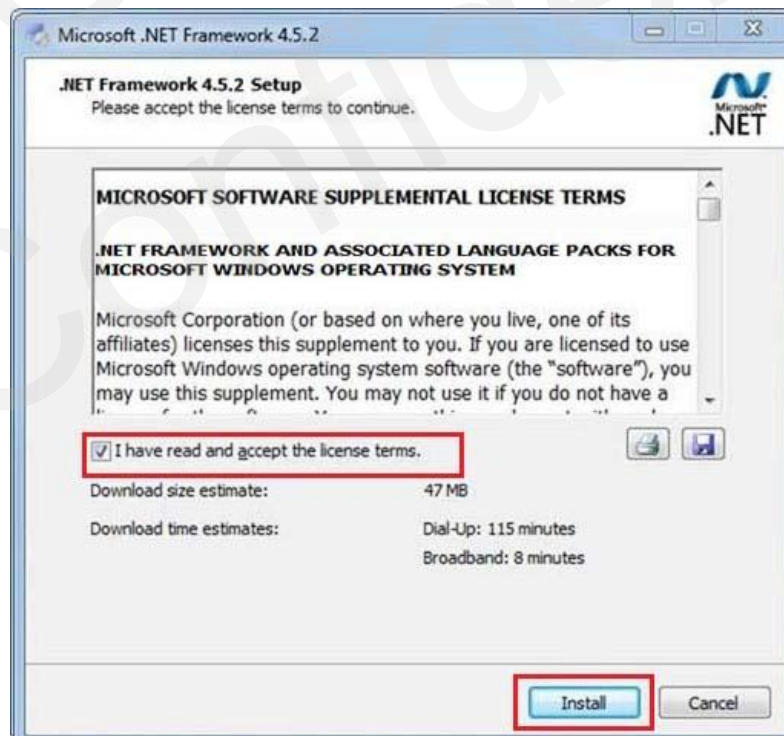


Figure 2: License Agreement for Microsoft .NET Framework Installation

- Please wait for the program to install.

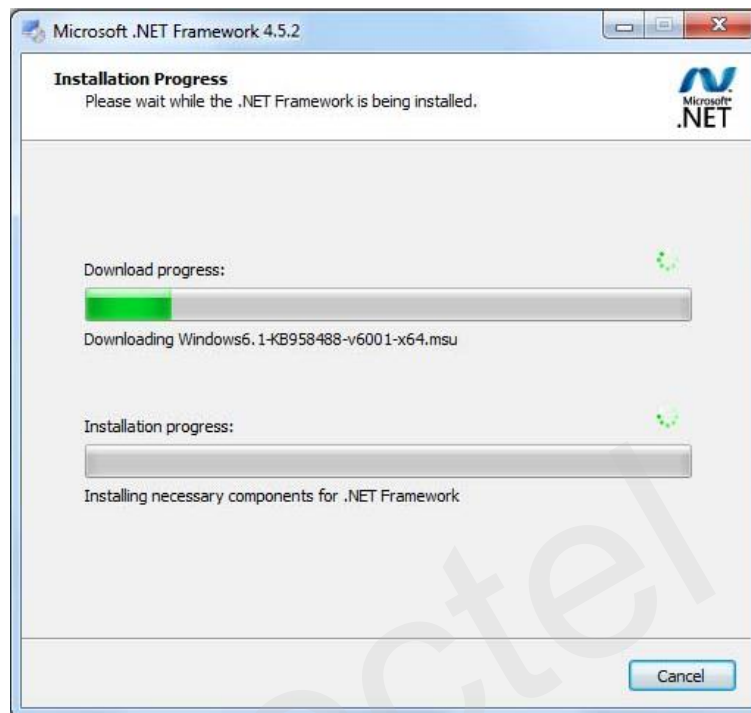


Figure 3: Microsoft .NET Framework is Installing

- Click “**Finish**” to accomplish installation.

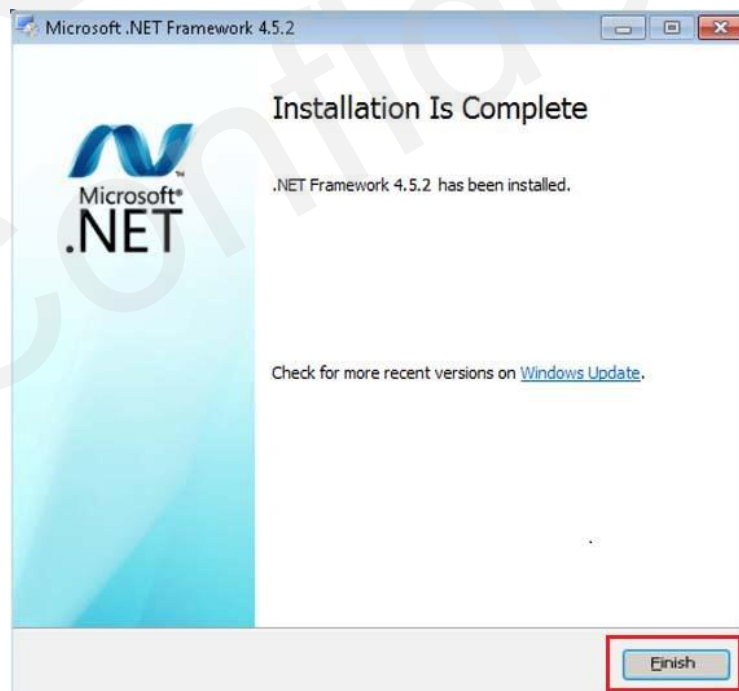


Figure 4: Microsoft .NET Framework is Successfully Installed

3 Firmware Upgrade

3.1. Firmware Upgrade for B650SP11~B655 Versions

BC95 module should be turned off before upgrading the firmware for B650SP11~B655 versions. The following is a reference design for the connection between BC95 and PC.

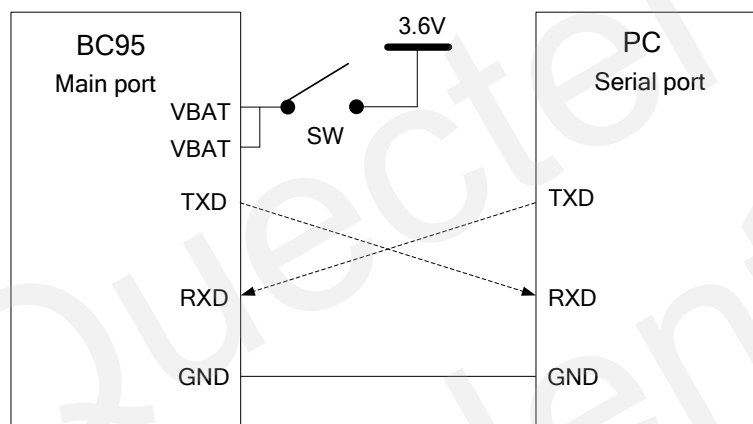


Figure 5: Reference Design for Connection between BC95 and PC

1. Double-click *CodeLoader.exe* in *CodeLoader* folder to start the upgrade tool.

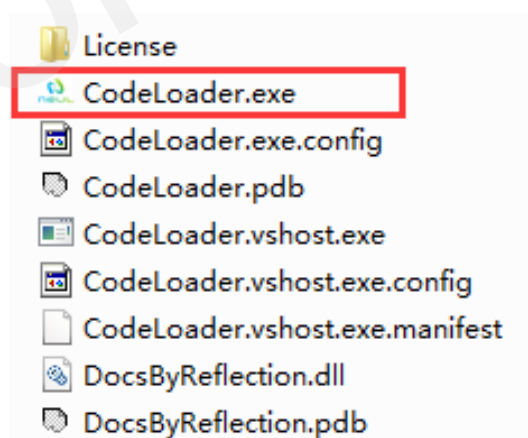


Figure 6: CodeLoader.exe

- When the following window shows up, please select the proper COM port and .bin files in the following red boxes for configuration. *security.bin*, *protocol.bin* and *application.bin* files can be found in *NB-IOT-xxx_EVK* folder, and *protocol.bin* file exists in the *evk* folder, as shown below.

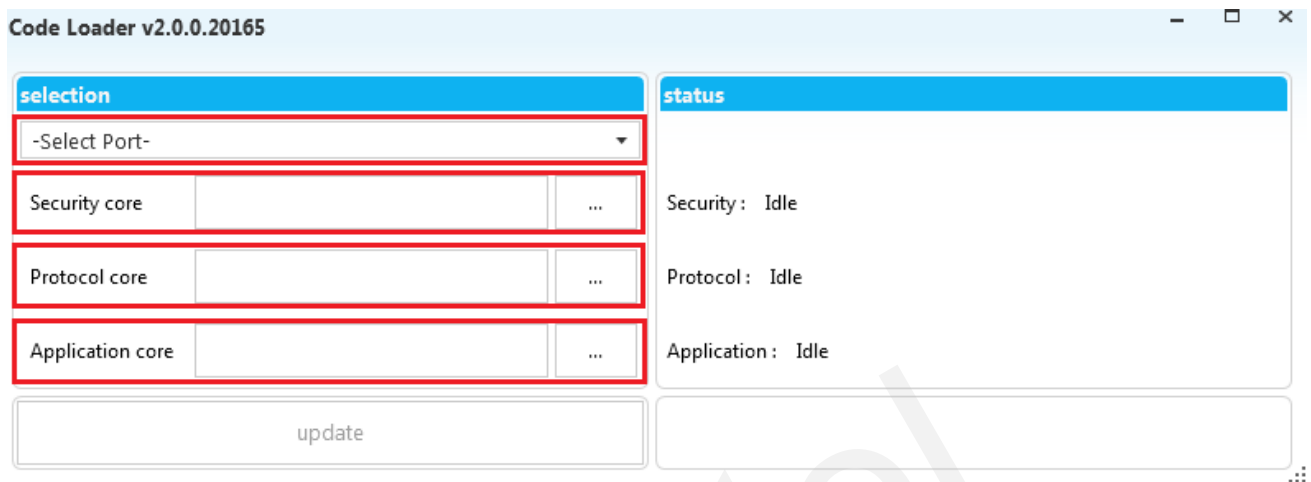


Figure 7: Configuration for Firmware Upgrade

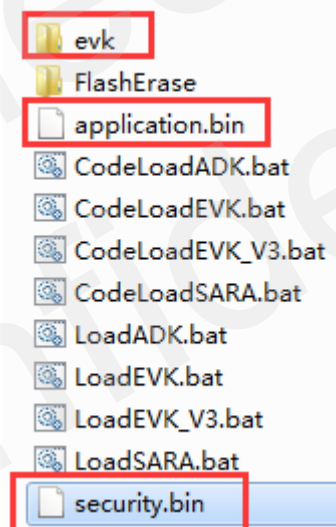


Figure 8: Directory of .bin Files

- Please click “update” to start firmware upgrade process.

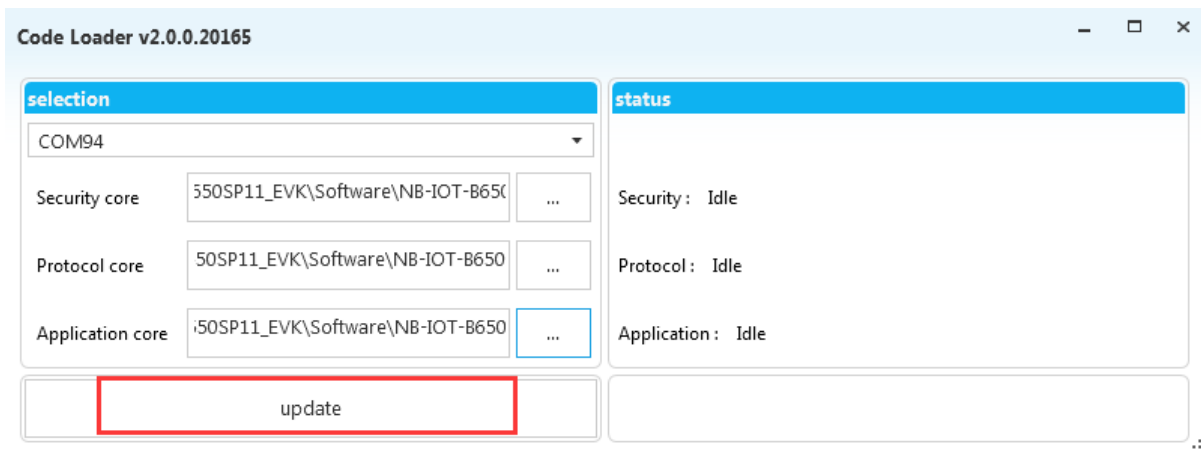


Figure 9: Start Firmware Upgrade Process

- When the information in the red box appears, please turn on the BC95 module.

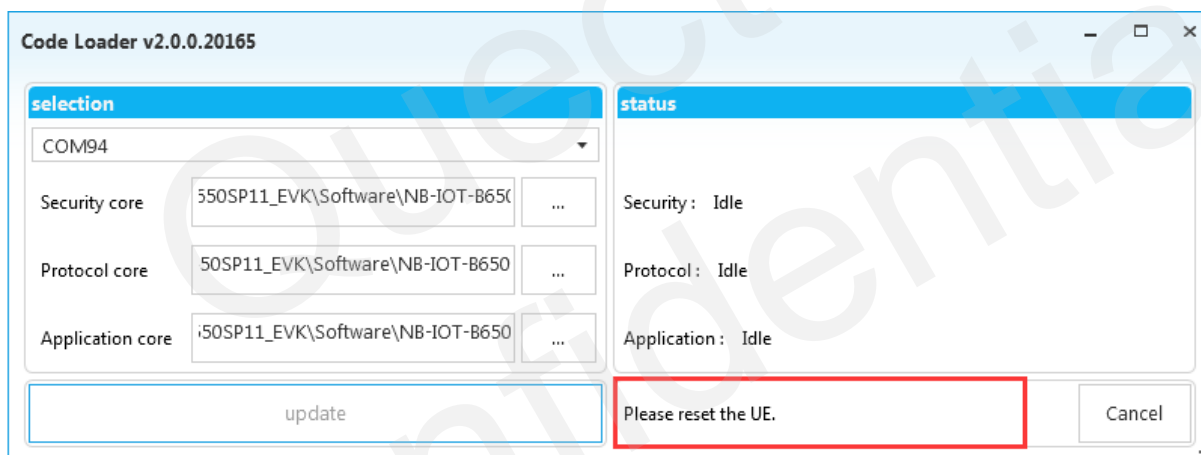


Figure 10: Prompt for Turning on the Module

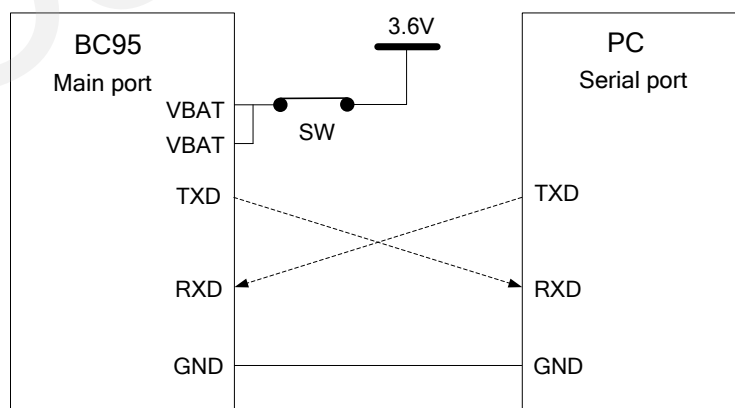


Figure 11: Reference Design for Turning on the Module

- After turning on the module, it starts upgrading firmware. Please wait during the process.

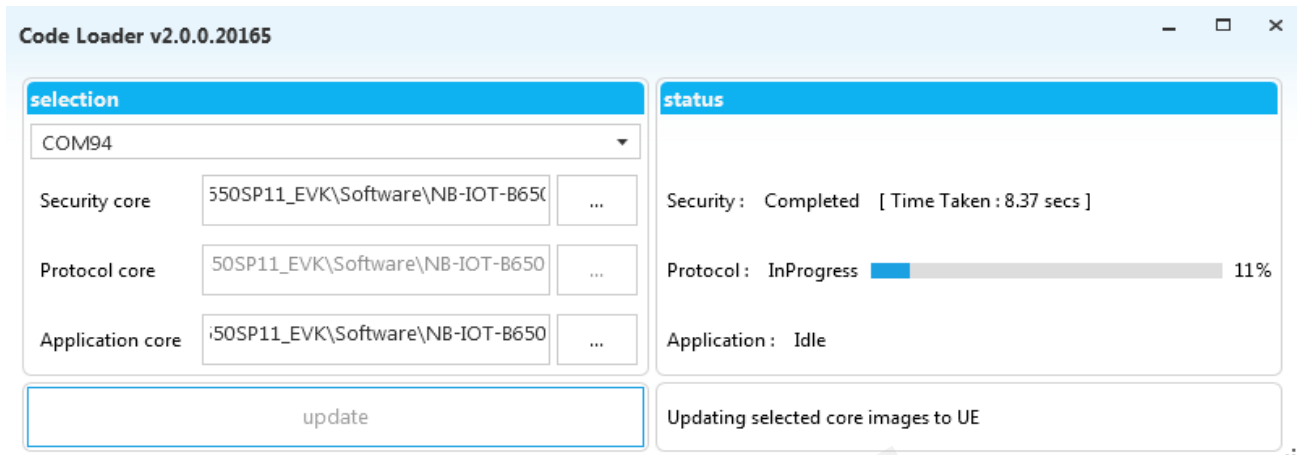


Figure 12: Firmware is Upgrading

- When the information in the following red box shows up, it means that firmware downloading process has been finished, please reboot the BC95 module.

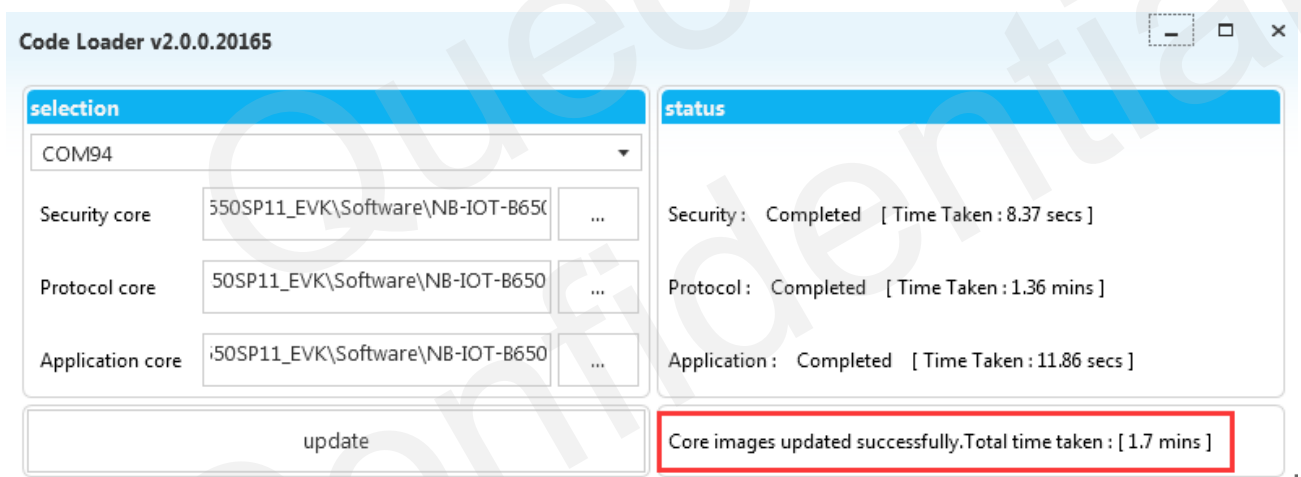


Figure 13: Firmware is Successfully Upgraded

3.2. Firmware Upgrade for B656 Version or Later

3.2.1. Install Code Loader

1. Double-click *setup.exe* in *CodeLoaderInstaller* folder to install the Code Loader tool.

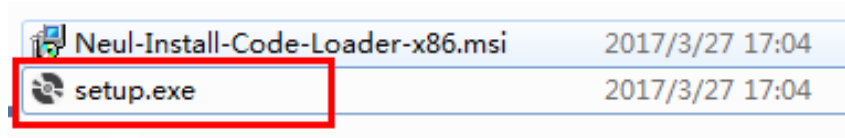


Figure 14: Code Loader Installation Package

2. Wait until the following window shows up, and then click **Next**.

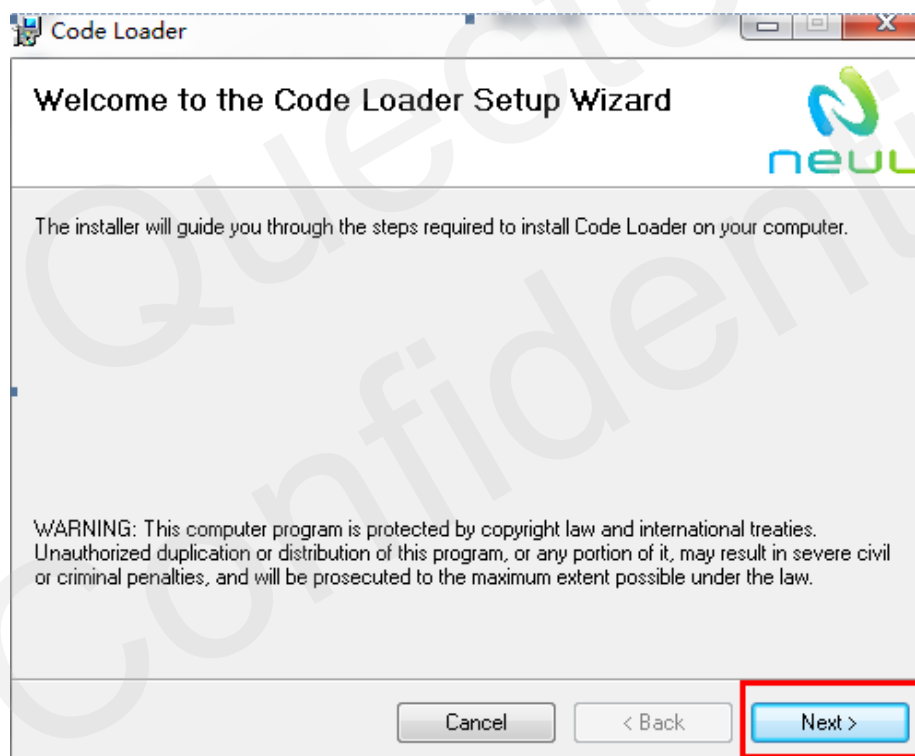


Figure 15: Warning for Code Loader Installation

3. Select installation folder, and choose **"Everyone"** for user permission, then click **"Next"**.

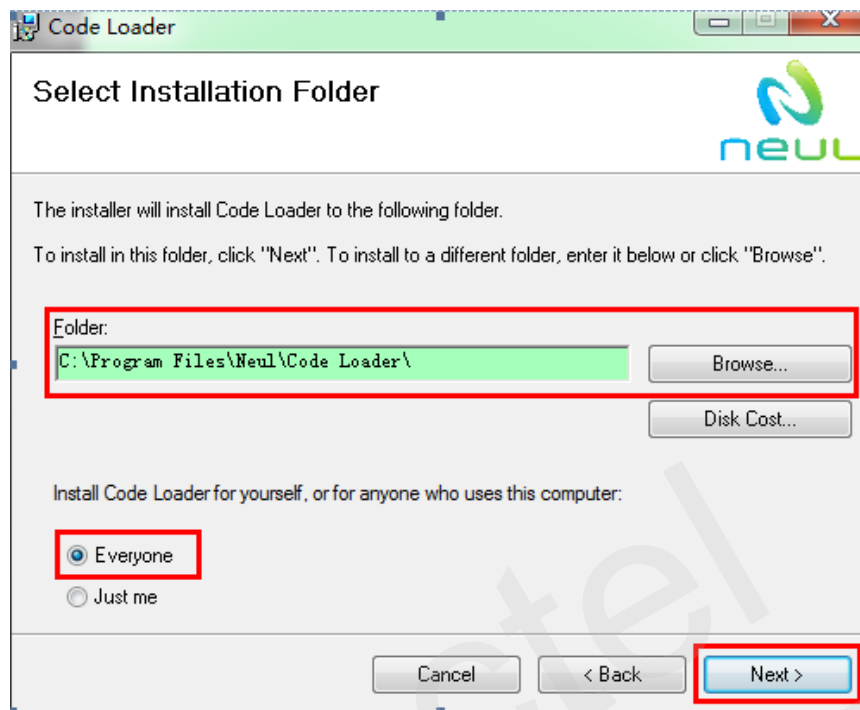


Figure 16: Select Installation Folder and Choose "Everyone"

4. Click **"Next"** to start installation process.

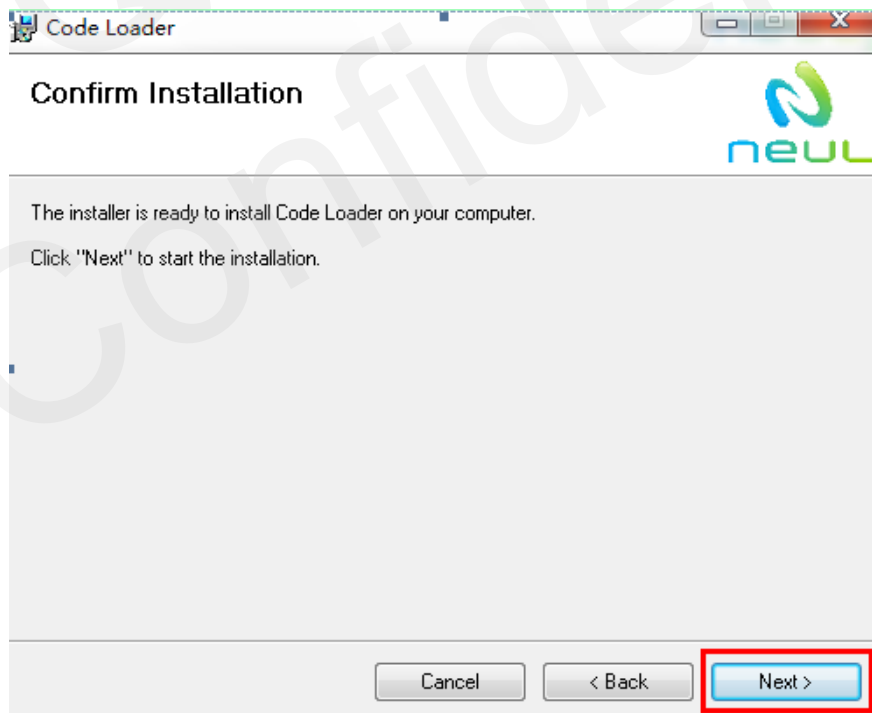


Figure 17: Confirm Installation

5. Please wait for the program to install.

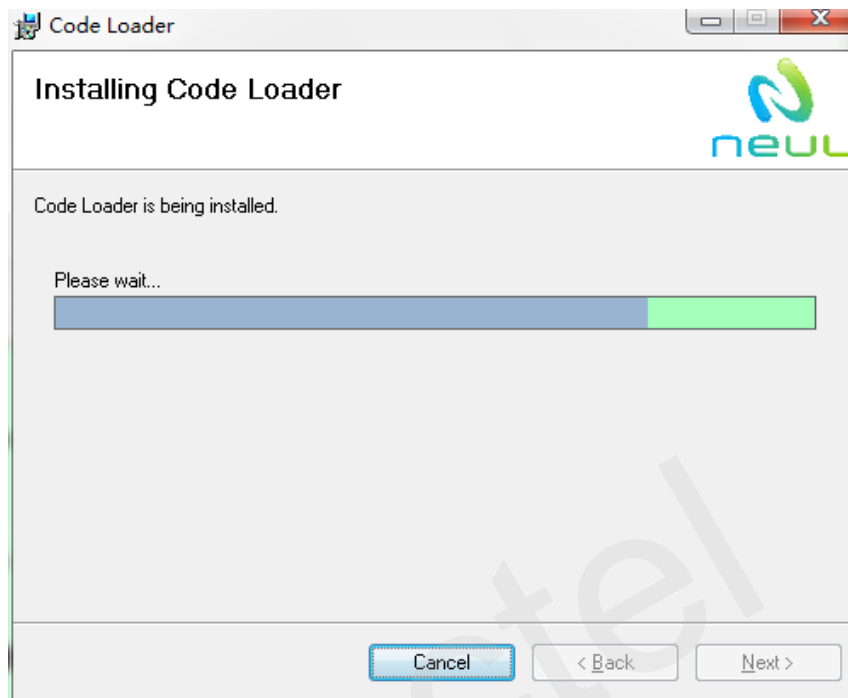


Figure 18: Wait While Installing Code Loader

6. Click “Close” to accomplish installation.

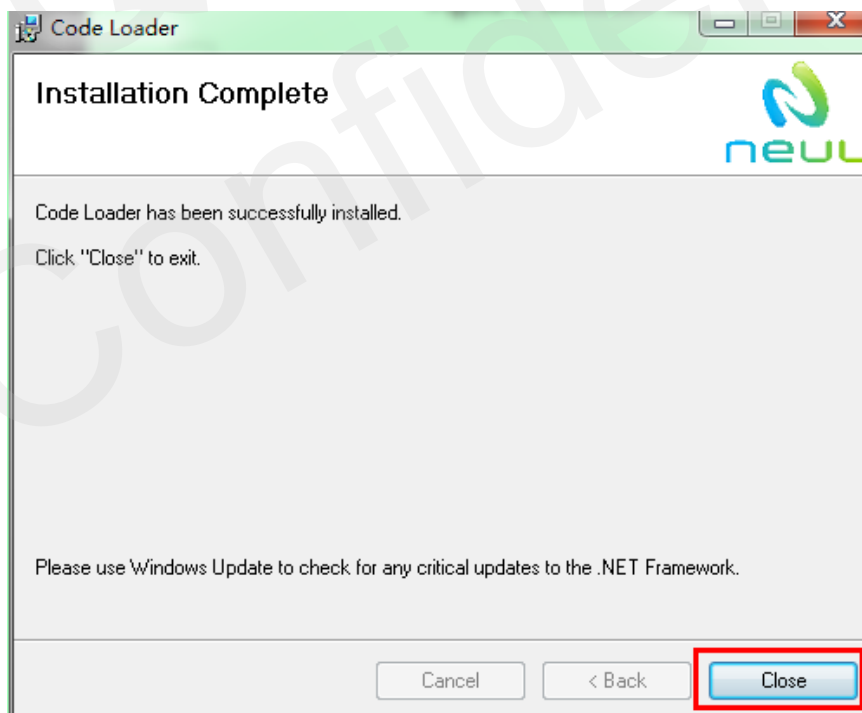


Figure 19: Code Loader is Successfully Installed

3.2.2. Erase Flash

The original NV (non-volatile) items such as IMEI number will not be preserved after erasing the flash, please read out the IMEI number by **AT+CGSN=1** command before erasing operation.

1. Enter *Software* folder, right-click *Codeloader-Erase.bat* in corresponding software version folder, and select **"Edit"** to edit the file.

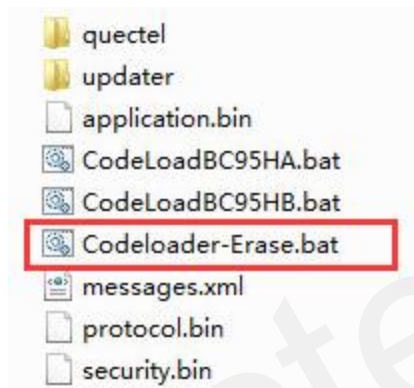


Figure 20: Directory of Codeloader-Erase.bat File

2. Set the port and path for Code Loader installation. "COMPORT" should be set with capital letter, and "CODELOADER" should be the path where the Code Loader is installed. Then save the file.

```
@echo off
set COMPORT=COM4
set CODELOADER="C:\Program Files\Neu\Code Loader\CodeLoader.exe"

REM Set Flash Limits
echo RESET board after UART: 115200 baud
echo
set CLCMD=%CODELOADER% manual SetFlashLimits %COMPORT% 20 177 32
echo %CLCMD%
%CLCMD%
if not %errorlevel% == 0 (goto error)

REM Update Security and Reboot
echo Updating Security Core
set CLCMD=%CODELOADER% connected UpdateSecurity %COMPORT% security.bin 16384
echo %CLCMD%
%CLCMD%
if not %errorlevel% == 0 (goto error)

REM Erase Entire Chip
```

Figure 21: Edit the Codeloader-Erase.bat File

- Double-click the *Codeloader-Erase.bat* to run the file.

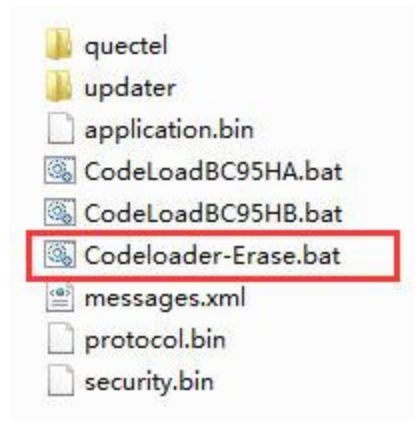


Figure 22: Run the Codeloader-Erase.bat

- Wait until the information in the following red box shows up, and then reboot the BC95 module.

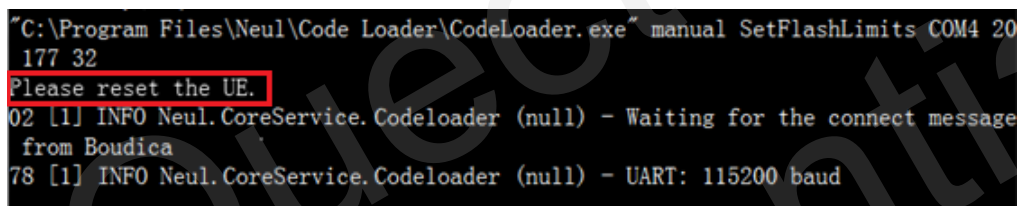


Figure 23: Prompt of Rebooting the Module for Erasing

- After rebooting the module, it starts erasing the flash. Please wait during the process. When "OK" shows up, it means the flash has been completely erased, please exit from the command window.

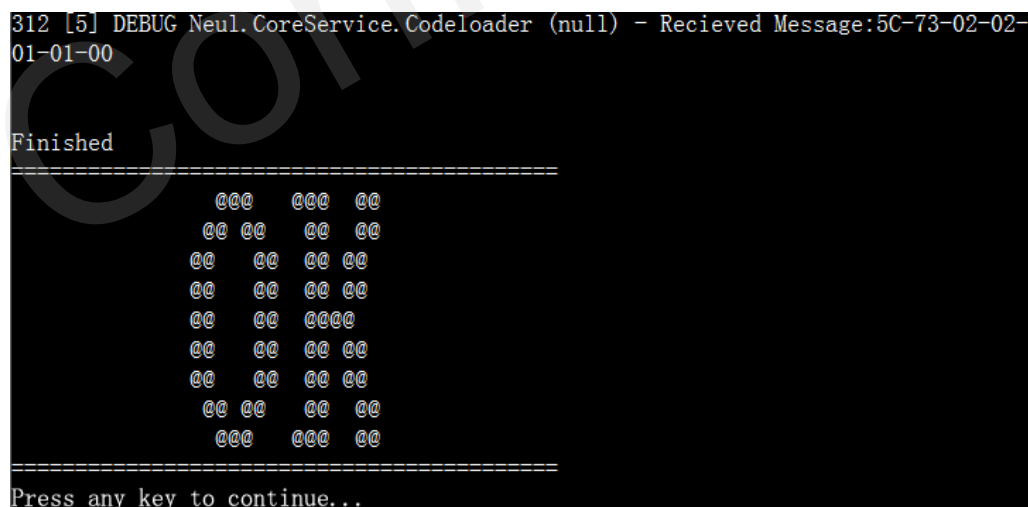


Figure 24: Flash is Completely Erased

3.2.3. Upgrade Firmware

The firmware can be upgraded after erasing the flash.

1. Enter *Software* folder, right-click *CodeLoadBC95HA.bat* or *CodeLoadBC95HB.bat*. (select corresponding file according to the ordering code on the module) in corresponding software version folder, and select “**Edit**” to edit the file.

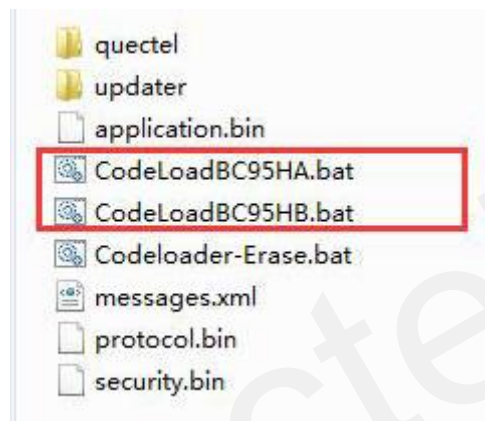


Figure 25: CodeLoadBC95Hx.bat File

2. Set the port, band and the path for Code Loader installation. “COMPORT” should be set with capital letter, “BAND” should be set as 800 (for Band 20), 850 (for Band 5) or 900 (for Band 8), and “CODELOADER” should be the path where Code Loader is installed. Then save the file.

```
@echo off
REM
REM Copyright (c) 2016 NEUL LIMITED
REM
set COMPORT=COM4
set BAND=800
if "%COMPORT%" == "" goto usage
if "%BAND%" == "" set BAND=900
echo BAND=%BAND%
if "%BAND%" == "900" goto load
if "%BAND%" == "850" goto load
if "%BAND%" == "800" goto load
goto usage

:load
REM Set Codeloader to the default location
set CODELOADER= C:\Program Files\Neul\Code Loader\Codeloader.exe
rem goto test
```

Figure 26: Edit the CodeLoadBC95Hx.bat File

- Double-click the *CodeLoadBC95HA.bat* or *CodeLoadBC95HB.bat* to run the file.

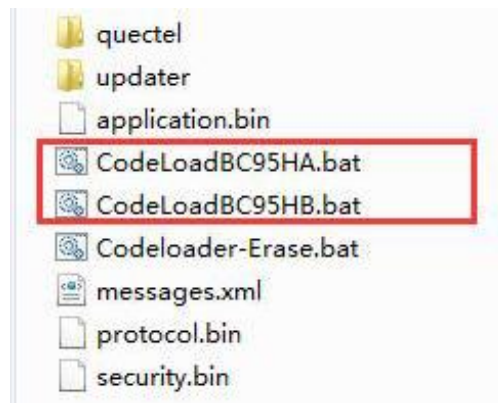


Figure 27: Run the CodeLoadBC95Hx.bat File

- Wait until the information in the following red box shows up, and then reboot the BC95 module.

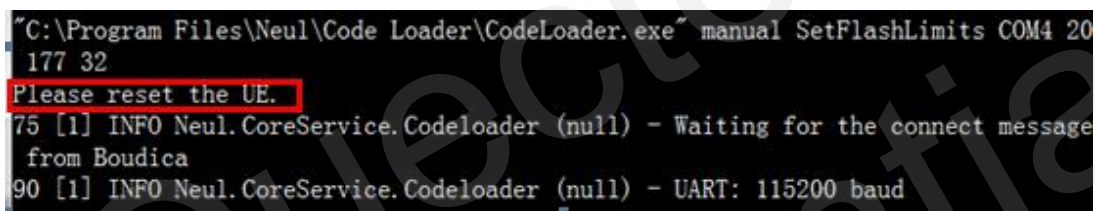


Figure 28: Prompt of Rebooting the Module for Upgrading

- After rebooting the module, it starts upgrading the firmware, please wait during the process. When "OK" shows up, it indicates the firmware is upgraded completely, please exit from the command window.

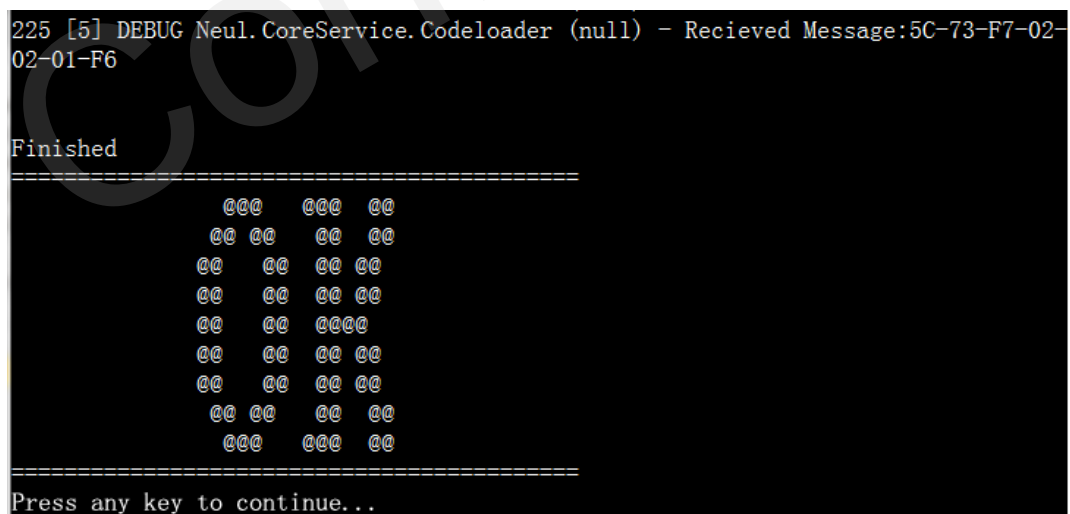


Figure 29: Firmware is Completely Upgraded

6. Restart the module, and query the firmware version by AT command **AT+CGMR**. If the target version is returned, then the firmware is successfully upgraded.
7. Write the IMEI number which has been read out before erasing flash to the module by **AT+NTSETID=1,.....** and query the IMEI number by **AT+CGSN=1**.

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4 Revert from a New Firmware Version to an Earlier One

4.1. Erase Flash

Flash should be erased before reverting from B656 version or later to an earlier one, please refer to **Chapter 3.2.2** to erase the flash. If the current firmware version is B655 or earlier, then flash erasing operation is not needed.

4.2. Uninstall Code Loader

1. Enter “**Control Panel**”, and then double-click “**Uninstall a program**”.

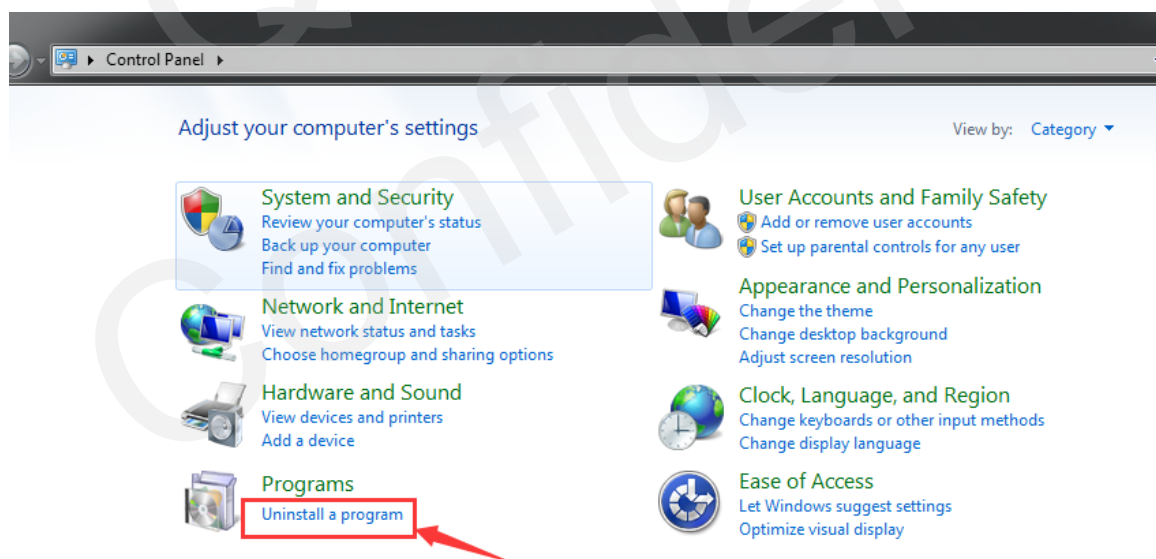


Figure 30: Uninstall a Program in Control Panel

- Double click the “Code Loader” on the list of programs.

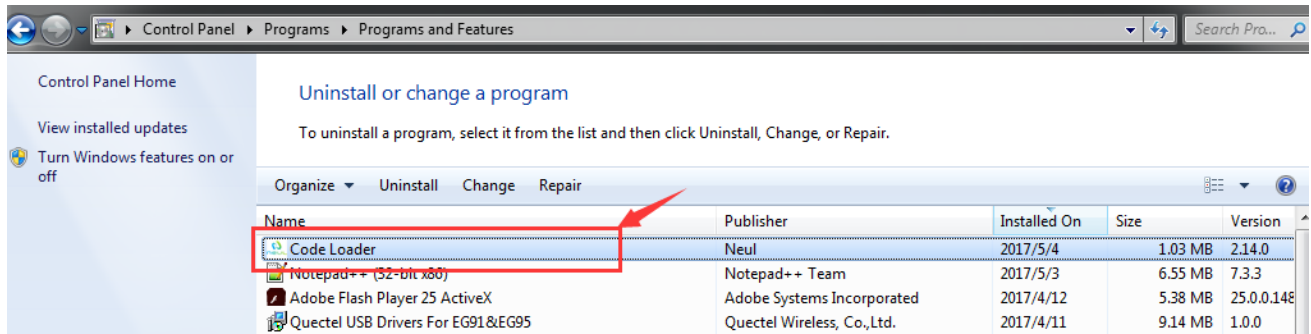


Figure 31: Double Click “Code Loader”

- Click “Yes” button to start installing Code Loader.

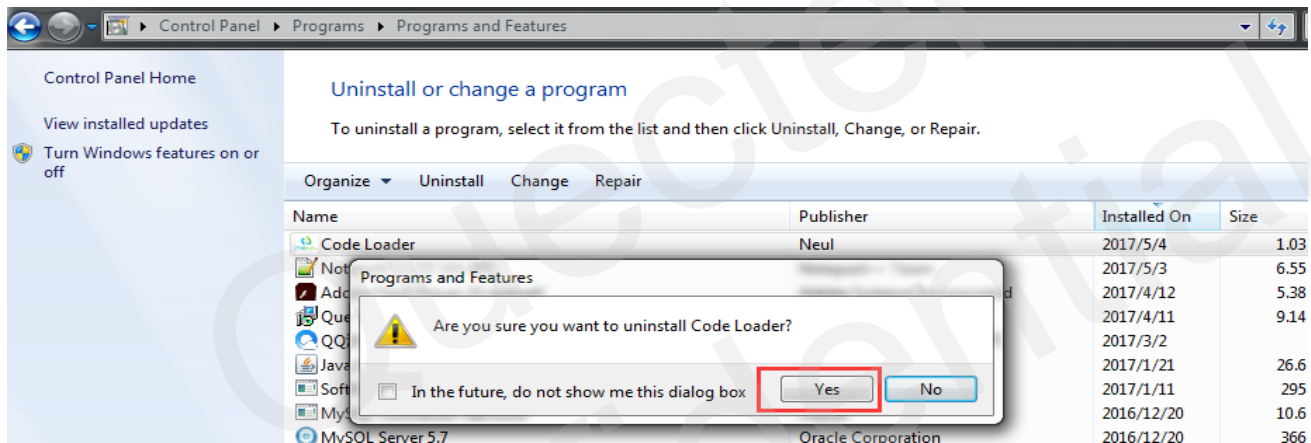


Figure 32: Verify Uninstallation

- Please wait for the program to uninstall Code Loader.

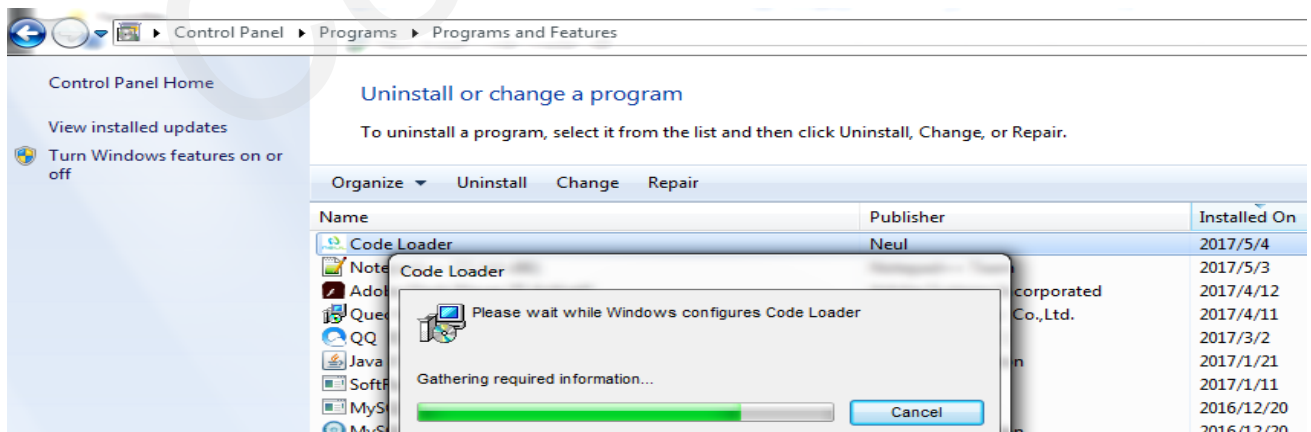


Figure 33: Wait While Uninstalling Code Loader

4.3. Revert from a New Version to an Earlier One

1. Please use the corresponding upgrade tool of the target version to upgrade the current firmware version to the target one.
 - If the target firmware version is B650SP11~B655 (such as B650SP11 or B655SP2), please refer to **Chapter 3.1** to upgrade the firmware.
 - If the target firmware version is B650SP8, please refer to **Quectel_BC95_Firmware_Upgrade_via_Universal_Code Loader_User_Guide** to upgrade the firmware.
2. Restart the module, and query the firmware version by **AT+CGMR** AT command. If the target version is returned, then the firmware is successfully upgraded.
3. Write the IMEI number which has been read out before erasing flash to the module by **AT+NTSETID=1,.....** and query the IMEI number by **AT+CGSN=1**.